REMARKS

Reconsideration and continued examination of this application are respectfully requested.

The amendment to the specification corrects typographical errors, defines the terms specified by the Examiner, and updates the cited U.S. patent applications, which either have matured into U.S. patents or have been abandoned. No new matter has been added. No questions of new matter should arise and entry of this amendment is respectfully requested.

At pages 2 and 3 of the Office Action, the Examiner rejects claims 95-117 under 35 U.S.C. §112, first paragraph. According to the Examiner, the specification does not include any support for the phrase "wherein said aggregate has silanol groups located at the surface of the aggregate." Additionally, the Examiner asserts that the specification does not teach one skilled in the art how the silanol groups are located at the surface of the aggregate. For the following reasons, this rejection is respectfully traversed.

With respect to claims 95-117, a silanol group at the surface of the aggregate is an inherent property of an aggregate comprising a carbon phase and a silicon-containing species phase. This inherent property is illustrated by detecting the silanol concentration at the surface of the carbon-silica dual phase of the aggregate. The method to measure the silanol concentration at the surface of carbon-silica dual phase filler is described in "Carbon-Silica Dual Phase Filler, A New Generation Reinforcing Agent for Rubber Part IV. Surface Chemistry of Carbon-Silica Dual Phase Fillers," by Murphy et al. According to Murphy et al., when trimethylchlorosilane (TMCS) is added to an aggregate comprising a carbon phase and a silicon-containing species phase, the TMCS reacts with the silanol groups on the silica phase at the surface. The TMCS uptake is measured, which shows the silanol concentration

at the surface of the aggregate. In the present invention, this was the case, and therefore, silanol was present. In particular, the aggregates in Table 2 of the present application were tested as shown in the attachment A-1. Accordingly, this rejection should be withdrawn.

At pages 3 and 4 of the Office Action, the Examiner asserts that the declaration submitted to the United States Trademark and Patent Office was defective because it did not include residence and post office addresses for Yakov Kutsovsky. Additionally, the Examiner asserts that the present application includes a claim, which recites an aggregate having silanol group, not originally claimed or stated in the parent application to which the declaration applies. As such the Examiner requests the applicants to submit a supplemental oath or declaration under 37 C.F.R. §1.67. For the following reasons, this rejection is respectfully traversed.

Applicants have enclosed a supplemental declaration under 37 C.F.R. §1.67 signed by the inventors. However, the applicants note that no new declaration is needed for purposes of the claims, since as explained above, support inherently exists for the claim language. Accordingly, this rejection should be withdrawn.

At page 4 of the Office Action, the Examiner asserts that the applicants have not complied with one or more conditions for receiving the benefit of an earlier filing date under 35 U.S.C. §120. The Examiner asserts that there are certain claims that are not supported in a prior application. The Examiner is requesting that applicants redesignate this application as a continuation-in-part application. For the following reasons, the applicants have complied with 35 U.S.C. §120.

As mentioned above, the claims which the Examiner questions are fully supported in the application as originally filed including the parent application upon which benefit

is claimed under 35 U.S.C. §120. Since support inherently exists, the conditions for receiving the benefit of the earlier date apply. Accordingly, the Examiner's objection should be withdrawn.

At page 5 of the Office Action, the Examiner indicates that claims 59-81 are allowed. The applicants and the undersigned are appreciative of the indication of allowable subject matter and believe that the comments set forth above should convince the Examiner that the rest of the claims are ready for allowance as well.

At page 5 of the Office Action, the Examiner objects to the Abstract of the present application. The Examiner asserts that the Abstract should not refer to purported merits or speculative applications of the invention and should not compare the invention with the prior art. For the following reasons, this rejection is respectfully traversed.

The present amendment to the Abstract includes that which is new in the art to which the invention pertains. Accordingly, this objection should be withdrawn.

At page 6-7 of the Office Action, the Examiner objects to the disclosure of the present invention. The Examiner asserts that the applicants must provide a definition for STEM-EDX, CDBP, N234, kscfh, and nm^3/h. Furthermore, the Examiner requests that the applicants correct the spelling of the term "antioxidant" in the specification. In addition, the Examiner further requests that the applicants update the U.S. patent applications cited throughout the specification, which either have matured into U.S. patents or have been abandoned. The Examiner also asserts that the applicants' incorporation of foreign patents and non-patent literature is improper because only U.S. patents and U.S. patent applications can be incorporated by reference. For the following reasons, this objection is respectfully traversed.

The present amendment to the specification clearly defines each of the terms specified by the Examiner. Furthermore, the present amendment to the specification corrects the misspelled term "antioxidant" at pages 34 and 40, and updates the status of the U.S. patent application numbers referred to at pages 1, 6, and 26.

With respect to incorporation of foreign patents or non-patent literature, under PTO rules, only "non-essential material" can be incorporated by reference with respect to foreign patents, patent applications published by foreign patent offices, non-patent publications, or foreign applications. Additionally, according to M.P.E.P. § 608.01(p), essential material is defined as "that which is necessary to support the claims or for adequate disclosure of the invention." The non-patent publication and the U.K. Patent Application No. 2,296,915 which are incorporated by reference in the present application, merely illustrate exemplary silicon-containing compounds which may be used. One skilled in the art, by reading page 11, lines 8-21 of the present application, would clearly understand the meaning of silicon-containing compounds and would be able to practice the claimed invention. As such the two references incorporated by reference, are not necessary to support the claims or to provide adequate disclosure of the present invention and thus are not essential material under PTO rules. Similarly, WO 96/29710, which is incorporated by reference at page 12, line 9 of the present application, is merely an example of how the multi-phase aggregate of the present invention can be agglomerated in wet or dry processes. As such, WO 96/29710 is not necessary to support the claims or to provide adequate disclosure of the present invention and thus is not essential material under PTO rules.

PCT Published Patent Application Nos. WO 96/18688 and WO 96/18696, which

are incorporated by reference at page 26, line 8 of the present application, merely provide examples of methods for attaching an organic group to a carbon black. Several methods can be used for attaching an organic group to a carbon black. In addition to the methods described in WO 96/18688 and WO 96/18696, page 26, lines 5-7 incorporate other references that also describe different methods for attaching an organic group to a carbon black. As such, any known method can be used, and the methods described in WO 96/18688 and WO 96/18696 are not necessary to support the claims or to provide adequate disclosure of the present invention and thus are not essential material under PTO rules. Accordingly, incorporating the non-patent publications and foreign applications by reference in the present application is permitted under PTO rules. Consequently, the Examiner's request to amend the specification with respect to incorporating the non-patent publications and foreign applications should be withdrawn. Accordingly, this objection should be withdrawn.

Additionally, the applicants amended page 6, line 27 to correct a typographical error. At page 6, line 27, the PCT Published Application No. WO 96/37547 should read WO 96/37546. Furthermore, the applicants have amended page 29, line 7, to further define the term OTMS-CB.

With respect to N234, this is a term recognized in the carbon black field. For instance, see the attached article.

At page 7 of the Office Action, the Examiner states the Information Disclosure Statement filed on October 11, 2002 failed to comply with 37 C.F.R. §1.97(c) because it lacks a statement as specified in 37 C.F.R. §1.97(e). For the following reasons, this rejection is respectfully traversed.

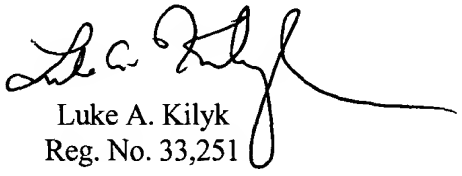
According to our records the only Information Disclosure Statement filed was on October 11, 2001, which was correctly submitted pursuant to 37 C.F.R. §1.97(b). No statement under §1.97(e) is needed in view of the timely submission. Accordingly, this objection should be withdrawn.

CONCLUSION

In view of the foregoing remarks, Applicants respectfully request the reconsideration of this application and the timely allowance of the pending claims.

If there are any other fees due in connection with the filing of this response, please charge the fees to Deposit Account No. 03-0060. If a fee is required for an extension of time under 37 C.F.R. §1.136 not accounted for above, such extension is requested and should also be charged to said Deposit Account.

Respectfully submitted,



Luke A. Kilyk
Reg. No. 33,251

Atty. Docket No. 97020CIP2CON2(3600-091- 04)
KILYK & BOWERSOX, P.L.L.C.
53 A East Lee Street
Warrenton, VA 20186
Tel: (540) 428-1701
Fax.: (540) 428-1720

Enclosure: A-1
Supplemental Declaration under 37 C.F.R. §1.67

VERSION WITH MARKINGS TO SHOW CHANGES MADE

IN THE ABSTRACT

An aggregate including a carbon phase and a silicon-containing species phase is described, wherein a difference between BET (N_2) surface area and t-area of the aggregate is from about 2 to 100 m^2/g; a difference between BET (N_2) surface area and t-area of from about 1 to 50 m^2/g after HF treatment; a ratio of from about 0.1 to 10; a weight average aggregate size measured by DCP after HF treatment that is reduced by about 5% to 40%; a silica ash content in the aggregate of from about 0.05% to 1% based on the weight of the aggregate after HF treatment and based on ash resulting from silicon-containing compound; and a BET surface area of silica ash in the aggregate of from about 200 m^2/g to 700 m^2/g, wherein the silicon-containing species phase is present primarily at the surface of the aggregate.

[A method of making an aggregate having a carbon phase and a silicon-containing species phase is described and includes introducing a carbon black-yielding feedstock and a silicon-containing compound feedstock into different stages of a multi-stage reactor. The reactor operates at a sufficient temperature to decompose the silicon-containing compound and to form a carbon black phase from the carbon black-yielding feedstock. At least one of the feedstocks may include a diluent, such as an alcohol. Water, and aqueous based solution, and mixtures thereof.]

IN THE SPECIFICATION

On page 1, paragraph beginning on line 4 and ending on line 6:

This application is a Continuation-In-Part of U.S. Patent Application [Serial] No. 08/837,493, filed April 8, 1997, now U.S. Patent No. 5,904,762, which is incorporated in its entirety by reference herein.

On page 6, paragraph beginning on line 11 and ending on line 28:

For purposes of the present invention, the aggregate comprising a carbon phase and a silicon-containing species phase and made from the processes of the present invention can also be identified as a silicon-treated carbon black. In the aggregate comprising a carbon phase and a silicon-containing species phase, a silicon-containing species, including but not limited to, oxides and carbides of silicon, may be distributed through at least a portion of the aggregate and is an intrinsic part of the aggregate which also contains the carbon phase. In other words, the silicon-treated carbon black or the aggregate does not represent a mixture of discrete carbon black aggregates and discrete silica aggregates. Rather, the silicon-treated carbon black of the present invention includes at least one silicon-containing region as part of the silicon-treated carbon black wherein the silicon-containing region is located at the surface of and/or within the silicon-treated carbon black. The silicon-containing species that is part of the aggregate of the present invention is not attached to a carbon black aggregate like a silane coupling agent, but actually is part of the same aggregate as the carbon phase. The disclosures of U.S. Patent Application No. 08/446,141, filed May 22, 1995, now [allowed;] U.S. Patent No. 5,830,930, U.S. Patent Application No. 08/446,142, filed May 22, 1995[;], now U.S. Patent No. 5,877,238, and U.S. Patent Application No. 08/750,016, filed [November 22, 1996] February 25, 1997, now U.S. Patent No. 5,916,934, which is a National Phase application of PCT Published Application No. [WO 96/37547] WO 96/37546 are incorporated in their entirety herein by reference.

On page 6, paragraph beginning on line 29 and ending on page 7, line 2:

When the silicon-treated carbon black is examined under scanning transmission

electron microscope-energy dispersive x-ray (STEM-EDX), the silicon signal corresponding to the silicon-containing species is found to be present in individual carbon black aggregates. By comparison, for example, in a physical mixture of silica and carbon black, STEM-EDX examination reveals distinctly separate silica and carbon black aggregates.

On page 12, paragraph beginning on line 5 and ending on line 12:

In general, the multi-phase aggregates of the present invention can be used either in nonagglomerated form, i.e., fluffy, or in agglomerated form. The multi-phase aggregate can be agglomerated in wet or dry processes as known in the art. During the wet agglomeration process, different types of pelletizing agents (e.g., binders and the like) can be added to the pelletizing water, see e.g. WO96/29710, incorporated herein by reference. Also, a coupling agent may be attached to the aggregate before or after pelletization, as described in U.S. Patent Application Number 08/850,145, now U.S. Patent No. 5,977,213, incorporated in its entirety herein by reference.

On page 13, paragraph beginning on line 7 and ending on line 14:

The weight percent of silicon in the silicon-treated carbon black preferably ranges from about 0.1% to about 25%, and more preferably from about 0.5% to about 10%, and most preferably from about 4% to about 10% by weight or from about 8% to about 15% by weight of the aggregate. From an economical point of view, the use of less silicon is preferable to the extent that it reduces the cost to make the aggregate, provided acceptable performance characteristics are achieved. It has been found that injecting a silicon-containing compound into the carbon black reactor can result in an increase in the structure (e.g., dibutylphthalate adsorption of the crushed carbon black (CDBP)) of the

product.

On page 26, paragraph beginning on line 1 and ending on line 9:

Another preferred set of organic groups which may be attached to the carbon black are organic groups having an aminophenyl, such as (C_6H_4)-NH_2, (C_6H_4)-CH_2-(C_6H_4)-NH_2, (C_6H_4)-SO_2-(C_6H_4)-NH_2. Preferred organic groups also include aromatic sulfides, represented by the formulas Ar-S_n--Ar' or Ar-S_n--Ar", wherein Ar and Ar' are independently arylene groups, Ar" is an aryl and n is 1 to 8. Methods for attaching such organic groups to carbon black are discussed in U.S. Patent. Nos. 5,554,739 and 5,559,169; U.S. Patent Application [Serial] No[s]. 08/356,660, now abandoned. and U.S. Patent Application No. 08/572,525[;], now U.S. Patent No. 5,851,280; and PCT Published Patent Application Nos. WO 96/18688 and WO 96/18696, all of the disclosures of which are fully incorporated by reference herein.

On page 29, paragraph beginning on line 3 and ending on line 10:

Silicon-treated carbon blacks according to the present invention were prepared using a pilot scale reactor generally as described above, and as depicted in the Fig. having the dimensions set forth below: D_1 = 7.25 inches, D_2 = 4.5 inches, D_3 = 5.3 inches, D_4 = 13.5 inches, L_1 = 24 inches, L_2 = 12 inches, L_2' = 45 inches (for Example OMTS-CB-A' wherein OTMS-CB is defined as octamethylcylotetrasiloxane – carbon black) and L_2' = 25 inches (for Examples OMTS--CB-B', C', D', and E') and Q = 8.583 feet (for Examples OMTS-CB-A', B' and C'), Q = 6.5 feet (for Examples OMTS-CB-D' and E'). The reaction conditions set forth in Table 1 below, were employed.

On page 32, paragraph beginning on line 3 and ending on line 14:

OMTS-CB-	A'	B'	C'	D'	E'
Air Rate kscfh*	60	60	60	60	60
Gas Rate, kscfh	4.9	4.9	4.9	4.9	4.9
Feedstock Rate at point 6, lbs/hr	351	373	381	488	284
Feedstock Rate at point 7, lbs/hr	287	305	312	163	418
OMTS rate at point 7, lbs/hr	22.2	50.2	50.2	46.6	46

*wherein kscfh is defined as thousand standard cubic feet per hour

On page 34, paragraph beginning on line 3 and ending on line 20:

	N234	D4-CB
SSBR (Duradene 715)	75	75
BR (Tacktene 1203)	25	25
N234	75	-
OMTS-CB	-	75
Si 69	-	3
Oil (Sundex 8125)	25	25
Zinc Oxide	3.5	3.5
Stearic Acid	2	2
Antioxidant [Antioxident] (Flexzone 7P)	1.5	1.5
Wax (Sunproof Improved)	1.5	1.5
Durax	1.5	1.5
Vanax DPG	-	1
TMTD	0.4	0.4
Sulfur	1.4	1.4

On page 38, paragraph beginning on line 3 and ending on line 14:

	MPCS-1	MPCS-2	MPCS-3	MPCS-4
Air Rate nm^3/h*	1605	1606	1605	1607
Gas Rate nm^3/h	132	133	134	133
Feedstock rate at point 6, kg/hr	266	298	334	346
OMTS rate at point 7, kg/hr	87.2	44	51	29.1
Feedstock (Iso-propanol) rate at point 7, kg/hr	0	0	49	69

* wherein nm^3/h is defined as cubic nanometer per hour

A-1

Measurements of the silanol groups on the surface of the aggregate comprising carbon phase and silica phase.

Method to measure silanol concentration of at the surface of Carbon-Silica dual phase filler is described In the paper "Carbon-Silica Dual Phase Filler, A New Generation Reinforcing Agent for Rubber Part IV. Surface Chemistry of Carbon-Silica Dual Phase Fillers" by Murphy *et al.* This method is based on extend of the reaction of trimethylclorosilane (TMCS) with the silanol groups of the silica phase at the surface. The data for MPCS-1 trough MPCS-4 for TMCS uptake based on this measurement are reported in the table below:

Table 2

Sample	Wt. % SiO_2.	TMCS uptake Mmol/g
MPCS-1	31.7	0.26
MPCS-2	17.4	0.17
MPCS-3	17.6	0.23
MPCS-4	10.5	0.16

These results indicate that there are from 0.16 mmol/g to 0.26 mmol/g of silanol groups available for reaction with TMCS on the surface of samples MPCS-1 through MPCS-4.